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ABSTRACT

The unit, designed for presentation to middle, junior high, and senior high school gifted students, contains a series of lessons which introduce the study of futures, teach several forecasting and problem solving techniques, provide students with the opportunity to examine and discuss problematic issues, and encourage students to take control and shape their futures and the future of society as a whole. Five objectives of the Alpha Unit are listed, such as encouraging students to work productively and efficiently, both independently and in groups. Following a list of suggested materials, lessons are arranged in a suggested sequence for a unit of approximately 22 hours. Provided for each lesson is information on its objectives, suggested materials, and procedures for presentation. Among the lesson topics are the following: scenario writing, problems of the future, and simulation games and independent projects. (SB)

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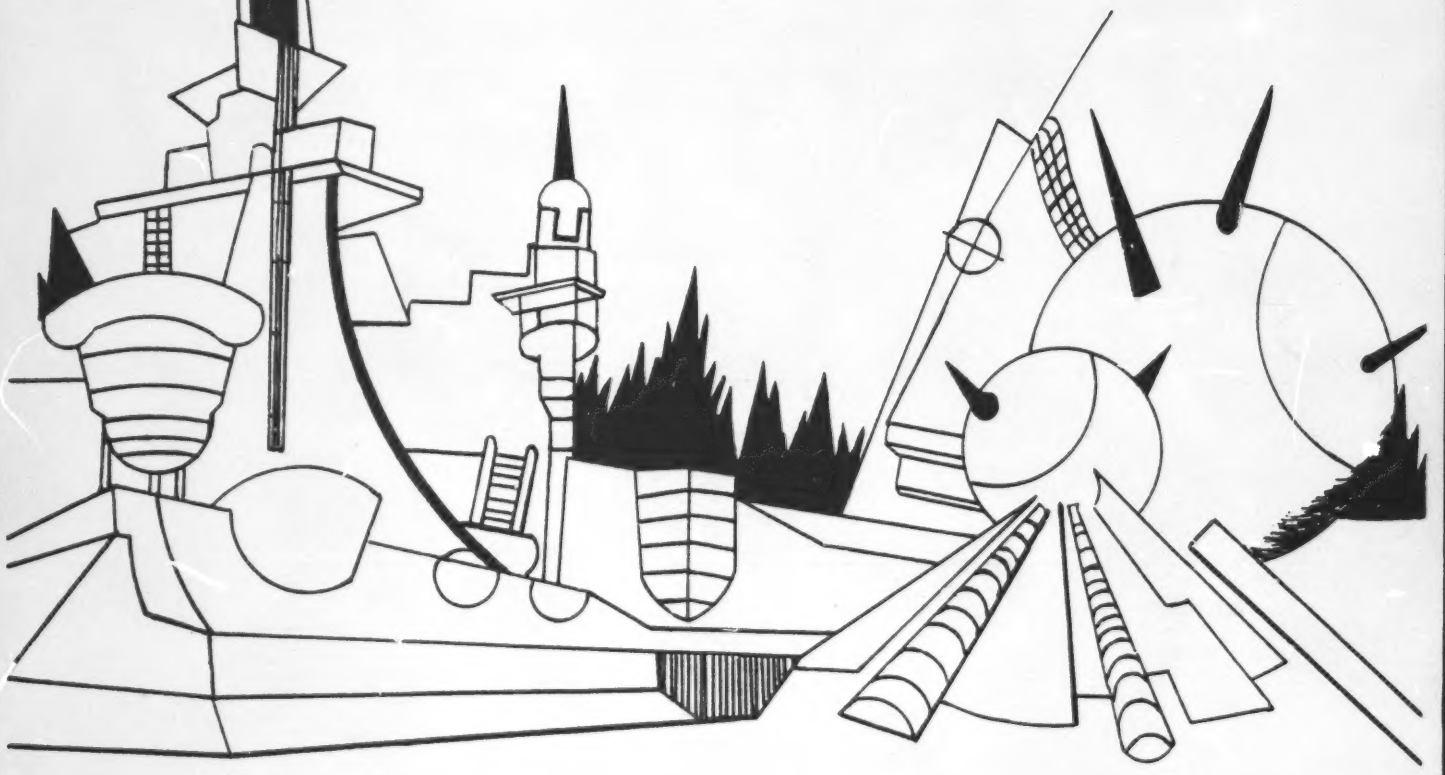

AN alpha STUDY UNIT

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FUTURES

Second Edition

A Study Unit Designed for
Education of the GIFTED in the Humanities and the Arts
by

PROJECT ALPHA
Advanced Learning Programs in the Humanities and Arts

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This Unit has been prepared as part of Project ALPHA's efforts to design and develop innovative and challenging materials for Gifted Education. The Project Staff has endeavored to produce units that: (1) provide a strong interdisciplinary blend of the content and strategies of the Humanities and Arts; (2) foster both critical and creative thinking; (3) provide stimulating and enriching experiences for Gifted students; and (4) encourage the use of multiple teaching methods and styles.

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ALPHA UNIT

FUTURES

OBJECTIVES:

1. To aid and encourage students in the development of creative problem solving abilities.

2. To provide students with the techniques and opportunities for the forecasting and solving of challenging problems.

3. To provide practice in recognizing, defining, and solving open-ended problems and to help students to develop the confidence to deal with such problems.

4. To introduce the concept of alternative futures and to familiarize students with the potentialities, both positive and negative, that the future holds.

5. To encourage students to work productively and efficiently, both independently and in groups.

NOTE TO THE TEACHER:

This revised edition of FUTURES is designed for presentation in middle, junior high, and senior high schools. It incorporates a variety of commercially produced materials along with some suggestions for curricular design and instructional methodology. It is intended that these materials and suggestions will lend themselves to flexible adaptation by the teacher. Choices of materials, techniques, problems, etc. will depend upon the student audience, time to be spent on the unit, desired depth and breadth of study, etc. Teachers are encouraged to design units that will be tailored for specific student groups.

This Unit contains a series of lessons designed to (1) introduce the study of Futures; (2) teach several forecasting and problem-solving techniques; (3) provide students with the opportunity to examine and discuss problematic issues; and (4) encourage students to take control and shape their futures and the future of society as a whole. The

lessons are arranged in a suggested sequence for a unit of approximately 22 hours, although the teacher will find suggestions for modifications of time and content.

Students will be expected to become familiar with the concept of alternative futures, with techniques that recognize, forecast, and define future situations, and with techniques that provide means to solving future problems, meeting future needs, and designing future lifestyles. The application of problem solving methods to the present and follow-up experiences such as field trips, independent projects, etc. are strongly encouraged. Experience has shown that many students have the desire to continue working independently after the class group presentations have been completed. Thus, it is expected that not only will this topic be one of high interest for the class or group in general but many independent study projects will develop from it if the program model permits such work.

FUTURES

SUGGESTED MATERIALS LIST

PRINTED MATERIALS

Art and the Future, Harold Taylor, Art Education, Inc., 1969.

A Step Farther Out, Jerry Pournelle, Ace Books, New York, 1979.

Di Fate's Catalog of Science Fiction Hardware, Di Fate/Summers, Workman Publishing, New York, 1970.

Future Shock, Alvin Toffler, Random House, Inc., New York, 1970.

The Third Wave, Alvin Toffler, William Morrow, & Co., Inc., New York, 1980.

Handbook for Training Future Problem Solving Teams, E. Paul Torrance, J. Pansy Torrance, S. Williams, Ruey-Yun Horng, Dept. of Educational Psychology, University of Georgia, Athens, Georgia.

Inventive Problem Solving and Future Studies, John W. Thomas, Research for Better Schools, Inc., Philadelphia, Pennsylvania, 1977.

Making Changes Units 1-4, (Students' Texts) John W. Thomas, Research for Better Schools, Inc., Philadelphia, Pennsylvania, 1977.

Making Changes Teacher's Guide, John W. Thomas, Research for Better Schools, Inc., Philadelphia, Pennsylvania, 1977.

Making Changes Handouts
Making Changes Posters
Making Changes Test Packet

Man Creates: Inventors, Sally Patton and Margaret Maletis, Patton Pending, Palo Alto, California, 1977.

Science Fact/Fiction, E.J. Farrell, T. E. Gage, J. Pfordresher, R. J. Rodrigues, Scott, Foresman and Co., Illinois, 1974.

Speculations: An Introduction to Literature Through Fantasy and Science Fiction, Thomas E. Sanders, Glencoe Press, Beverly Hills, California, 1973.

The Human Experience, David Weitzman and Richard E. Gross, Houghton Mifflin Co., Boston, 1974.

The World of the Family
Economics of Survival
Cities Through Time
Rules, Rights and Revolutions
Communicating Across Time and Space

Themes in Science Fiction, Leo P. Kelley, Webster Division, McGraw Hill Book Co., New York, 1972.

The Next 200 Years, Herman Kahn, William Morrow and Co., Inc., New York, New York, 1976.

1999: The World of Tomorrow, E. Cornish, World Future Society, Washington, DC, 1978.

GAMES/AUDIO-VISUAL MATERIALS

An Inquiry Into The Future of Mankind: Designing Tomorrow Today, Parts 1 and 2, (sound/slide show), Center for Humanities, Inc., White Plains, New York, 1974.

Future Planning Games, Bender/McCuen/Hinderman, Greenhaven Press, Inc., Minneapolis, Minnesota, 1972.

Futuribles: Gaming Together With 288 Possible Futures, George E. Koehler, Board of Discipleship, The United Methodist Church, Nashville, Tennessee, 1973.

Global Futures Game, Carleton/Carleton/Kolton, Earthrise Publications, Providence, Rhode Island.

UNIT: FUTURES

LESSON: Introduction to Futures Studies

OBJECTIVES: To introduce students to and establish the need for the study of Futures.

To acquaint students with the concept of alternative futures.

To provide basic background information regarding the content and techniques of Futures studies.

MATERIALS: Making Changes Unit 2

Making Changes Teacher's Manual

An Inquiry into the Future of Mankind...(Part 1)

1999: The World of Tomorrow

Other Selected Readings

(See Suggested Materials List for details.)

PRESENTATION:

- Introduce this Unit by presenting the sound/slide show Inquiry Into The Future of Mankind: Designing Tomorrow Today, Part I. Follow the presentation with a short discussion of the contents.

- Using Making Changes, Unit 2 as a reference, have the students read and discuss the topics in Lesson 10, which deals with the rationale for Futures Studies. Sufficient time should be provided for this discussion since it is likely to be quite interesting to the students and will set the tone for the entire Unit.

- Referring back to the sound/slide show, discuss the following topics: past examples of correct forecasting, forecasting methods (mention those to be studied during this Unit), the importance of education for the future, etc. The Teacher's Manual accompanying the A/V show also provides some very interesting discussion questions and activities, and it is recommended that the teacher use it as a reference.

- The following quotations in particular should be discussed:

  (Slide 41) "...the future cannot be predicted, but futures can be invented." (Dennis Gabor)

  (Slide 75) "...It's been said that the future belongs to those who prepare for it. For, while today may just seem like today, it's also the only time we have to invent tomorrow."

- Begin discussion of content topics or issues as chosen by teacher, students or both.

- Encourage and/or assign readings in selected science fiction* works, futures magazines, newspapers, etc.

* Throughout this Unit reference will be made to "science fiction" or "selected science fiction." These phrases are intended to refer to high-quality works with serious depictions of possible futures, rather than to those works with fantastic monsters, etc. that are intended for entertainment only. Of course, selection and approval are left to the teacher's discretion.

UNIT: FUTURES

LESSON: Introduction to Scenario Writing

OBJECTIVES: To introduce students to the techniques and potentialities of scenario writing.

To provide additional content for the study of futures.

To stimulate the students' imaginations in the area of forecasting.

MATERIALS: Making Changes Unit 2

Making Changes Teacher's Manual

Futuribles

Future Shock

The Third Wave

A Step Farther Out

Selected Science Fiction Readings

(See Suggested Materials List for details.)

PRESENTATION:

- Refer to Making Changes Teacher Manual, pp. 114-115 for guidelines and reference material for this lesson.
- Have students read and discuss Making Changes Unit 4, pp. 148-149 for background information on the scenario.
- After defining "scenario" and gaining some initial understanding of forms and purposes, conduct a

"Round Robin Scenario" (described on p. 115 of Teacher's Manual). Follow the scenario with a discussion of how many of the devices mentioned during the scenario already exist in some form today.

- Continue to assign readings in the variety of sources available. If appropriate, assign research in specific fields or topics to individual students for presentation at a later date.

UNIT: FUTURES

LESSON: Scenario Writing

OBJECTIVES: To help students develop their abilities to write imaginative but meaningful scenarios.

To encourage students in the development of sophisticated forecasting abilities.

MATERIALS: Inquiry Into The Future of Mankind...(Part I)

Futuribles

Making Changes Unit 2

Making Changes Teacher's Manual

(See Suggested Materials List for details.)

PRESENTATION:

- Review the definitions, activities, and experiences from the introductory lesson on scenario writing.

- Re-show Inquiry Into The Future of Mankind...(Part I), slides 15-28. Discuss the writing and final forms of the scenarios shown. Examine the utilization of such scenarios in terms of planning, evaluation, and decision making for the future.

- Refer to Making Changes Unit 2, pp. 57-61 and the Futuribles game for topics and problems which may provide the bases for scenario writing. If appropriate, consider playing Futuribles.

- Assign the task of writing a scenario to the students on an individual basis. Refer to the guidelines for scenario writing in the Teacher's Manual, pp. R-18, R-19. Begin to demand quality, imagination, detail, etc. Read the scenarios aloud, if appropriate, in order to share the work and thoughts of the students. Privately critique the work in order to develop the student's abilities in this area.

UNIT: FUTURES

LESSON: Cross-Impact Matrix

OBJECTIVES: To acquaint students with the process and capabilities of the Cross-Impact Matrix.

To aid students in the development of forecasting and evaluation abilities.

To examine the interactions of apparently unrelated events.

MATERIALS: Making Changes Unit 2

Making Changes Unit 1

Making Changes Teacher's Manual

(See Suggested Materials List for details.)

PRESENTATION:

- Refer to Making Changes Teacher's Manual, pp 66-69, R-18 for background information and teaching suggestions.

  - Note: For younger students or preliminary work, refer to Making Changes Unit 1, pp. 26-29, "Force Fit" and "Checkerboard."

- The Cross-Impact Matrix is a technique for determining the effects of one factor on another. It can be used for both forecasting and evaluation purposes.

- Making Changes Unit 2, pp. 86-87 should be read and discussed by the class. It is recommended that the teacher lead the class through the first matrix by conducting a group discussion with a chalkboard example.

- Following the group matrix, students should be given the opportunity to complete a personal matrix. One technique that has worked successfully is to encourage the students to complete a cross-impact matrix which contains potential events, situations, or alternative courses of actions in their own lives over the next 3-4 years. Factors such as Family, Education, Career, Social Life, etc. can be used as potential elements to be tested against such alternatives as Going Away To College, Going to a Local College, Taking Ballet Lessons, Going Out for the Track Team, etc. The possibilities should be real ones with the forecasting and evaluation having a real-life implication.

- Following the Personal Matrix, the teacher may choose to assign another individual matrix or go to a group matrix, either of which would deal with probable elements in the future for society in general.

- Because this technique will be of importance later, the teacher is encouraged to check and critique the work done in order to assure that each student has a grasp of the methods and purposes of this technique. Discussions regarding each of the matrices assigned is also encouraged.

UNIT: FUTURES

LESSON: Problems of the Future

OBJECTIVES: To identify and examine several problems that are potential in the future.

To sharpen the students' imagination and forecasting abilities.

To develop sophisticated problem-solving abilities using real problems.

MATERIALS: Inquiry Into The Future of Mankind...(Part 2)

Future Shock

The Third Wave

The Next 200 Years

A Step Farther Out

1999: The World of Tomorrow

Di Fate's Catalog of Science Fiction Hardware

Future World

Selected science fiction texts, futures magazines, articles, etc.

(See Suggested Materials List for details.)

PRESENTATION:

- It may be appropriate at this point in the unit to spend some time addressing certain problematic issues as well as continuing the forecasting process. The teacher should insure that the discussion remains critical, that events or consequences are not taken as granted, and that "one-sided" solutions to problems are not accepted without critical debate. As deemed appropriate, moral and philosophical considerations may be included in class discussions.

- Present the sound/slide show Inquiry Into The Future of Mankind: Designing Tomorrow Today, Part II. There are some interesting discussion questions in the Teacher's Guide, and, of course, the teacher and students will want to add others. It should be especially noted that some of the issues and possible solutions are rather debatable and may even run into moral resistance by students and/or parents. Care and consideration should be exercised by the teacher.

- Besides issues and problems as such, students may want to consider and discuss inventions, future life-styles, etc. Of course, such topics considered in depth may reveal themselves to have serious consequences resulting from them. But such analysis on the part of the students is encouraged and will help to prepare for the next lesson on the Future Wheel.

- Other materials in the Suggested Materials List, good science fiction works, and thoughtful articles in futures magazines are other good sources of content for this lesson. Depth and breadth of study are, of course, left to the teacher for decision. But, it is highly recommended that the study of consequences, needs, and interdependencies be carefully considered and conducted.

UNIT: FUTURES

LESSON: Future Wheel

OBJECTIVES: To develop the ability to forecast both consequences and needs.

To aid students in the development of forecasting and evaluation abilities.

MATERIALS: Making Changes: Unit 4

1999: The World of Tomorrow

Future World

Large sheets of art paper or newsprint paper

(See Suggested Materials List for details.)

PRESENTATION:

- See Making Changes Unit 4, pp. 145-147 and the accompanying Teacher's Guide, pp. 110-112, R-23, R-24 for recommendations on instruction in this technique.

- Our experience has shown this to be a good, fast-paced, easily-learned technique for generating the consequences and needs of a development. It does require some teacher control and a fast recorder (possibly the teacher) working at the chalkboard. It is recommended that the first Future Wheel be done as a teacher-led group project using the board. In this manner, the teacher can not only demonstrate the technique and motivate the students, but can also render some side remarks that will reinforce the possible value of the technique. Such remarks may include:

  1. The technique may be used to generate consequences and needs.

  2. If the consequences of a development are undesirable, the students should begin to generate needs to counter them.

3. Consequences can generate other consequences; needs can generate other needs; both can generate the other.

4. The Future Wheel can be used both to forecast and to provide information for evaluation. Thus, judgment may be rendered in a more knowledgeable manner after the completion of the Future Wheel.

5. Future Wheels require time and space to complete. A large board will be fine to teach the lesson, but large pieces of art paper or newsprint will be needed for individual and small group Future Wheels.

- Following the group Future Wheel, it is recommended that the teacher assign individual or small group Future Wheels based on possible developments. Making Changes Unit 4, pp. 146-147 contains a list of such developments, which may be used as Future Wheel starters. Future World, 1999..., etc. may also serve as sources for ideas.

- The teacher may conclude the lesson with a recapping of the process and value of using the Future Wheel. It may be noted that this technique will be employed later in more sophisticated fashion during the simulation games and group scenario writing.

UNIT: FUTURES

LESSON: Small Group Scenario Writing

OBJECTIVES: To develop the ability to write sophisticated and comprehensive scenarios.

To sharpen forecasting skills.

To develop and stimulate the imagination.

MATERIALS: Making Changes Unit 4

Selected science fiction texts, futures magazines, articles, etc

(See Suggested Materials List for details.)

PRESENTATION:

- At this point, the students should have a grasp of the techniques of simple scenario writing, the Cross-Impact Matrix, and the Future Wheel. They should also have good comprehension of the problems and issues of the future and of their potential role in determining alternative futures. If the teacher would like the students to learn further techniques, this would be an appropriate point to teach them. The Delphi Method and Trend Forecasting are techniques recommended for inclusion. Information about them can be found in Making Changes Unit 2 and the accompanying Teacher's Guide. Whether these or any other techniques are included is left to the judgment of the teacher.

- The next step is to involve the students in culminating activities of a more sophisticated and comprehensive nature than those previously taught. This lesson and the lesson following will be aimed at that purpose.

- This lesson on Small Group Scenario Writing is designed to incorporate all the techniques and subject matter previously discussed in this unit. The teacher should designate groups of three to six students. Each group will be assigned or will

choose a topic to be investigated and written into a scenario. The teacher will also designate which forecasting techniques are to be employed (and their order of employment, if appropriate). The students will then cooperate to produce a detailed, comprehensive, sophisticated scenario, which should incorporate a good research base, the appropriate use of forecasting techniques and strong imaginative input. Formats may be suggested, but are best left to student discretion. Quality and comprehensiveness should be encouraged and demanded.

- The completed scenarios should be reviewed by the class as a whole. They may be used as the focal points of new, more critical discussions of alternative futures, incorporating overlays of philosophical concerns, planning strategies and evaluations regarding the quality of life. Conceivably, if time is short, such scenarios and the accompanying discussions may serve as the culmination of the unit.

UNIT: FUTURES

LESSON: Simulation Games and Independent Projects

OBJECTIVES: To provide a culmination to the Futures Unit through challenging in-depth study.

To encourage students to work productively and efficiently in groups.

To provide students with the opportunity to pursue a topic of interest on an independent study basis.

MATERIALS: Making Changes Unit 4

Future Planning Game

Futuribles

Earthrise

(See Suggested Materials for details.)

PRESENTATION:

- The topic of Futures is an especially good one in terms of its potential for exciting student interest and allowing for individual research. As culminating activities, it is suggested that the teacher plan for simulation games, independent projects, or both. Such decisions are, of course, left to the teacher who must consider the time element involved, the desired depth of study, etc. The following suggestions are put forth for the teacher's consideration.

- Simulation games may provide the most satisfying culmination for the group as a whole. The simulation chosen should be sophisticated and challenging, and should require the utilization of the techniques learned in this unit. A number of simulation games are available and some are listed in the Suggested Materials List for this Unit. Considering the

sources for this Unit, the simulation in Making Changes (Unit 4) may prove to be very successful and quite appropriate. Experience has shown that such a simulation requires a good amount of time and continuity. It may, for example, require six to eight hours or more, yet should not be stretched over a period of longer than ten days.

Instructions are contained in the Making Changes booklets and Teacher's Guide. The completion of the simulation game should be followed by a discussion session in which the major issues and concerns of the unit are summarized and the lessons of the unit considered.

- Another alternative, which is best used with a group of students or individuals who may wish to pursue diverse topics, is that of independent projects. The range of topics which would fall under the umbrella topic of Futures is very large. Thus, individuals may choose subject areas that appeal to them in a particular way and which may allow for in-depth study and development. Politics, economics, transportation, ecology, food production, energy -- all these and more may be examined by individual students. Again, it is recommended that high quality, imagination and comprehensiveness be the criteria for a successful project. Formats and products will vary, but should probably be student-selected with teacher approval.

This alternative will, of course, require considerable time, perhaps months, but may be completed without involving the whole class at one time. Thus, the class may complete their work on Futures, but selected individuals may continue to address the topic. Or, if Futures remains the theme for the class, it may now be pursued on the basis of individual interests rather than group-oriented topics.

Upon completion of the independent projects, the teacher should plan group sessions for individual presentations to be followed by class discussion. If the completion of the projects represents the completion of the unit, it is recommended that a summing-up session be devoted to the consideration of the major issues examined and the important lessons learned.